



Morbidity and Mortality

Vol. 17, No. 48

WEEKLY
REPORTWeek Ending
November 30, 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

EPIDEMIOLOGIC NOTES AND REPORTS

INFLUENZA - United States 1968

Since November 23, 1968, documented outbreaks of A2/Hong Kong/68 influenza or A2 influenza have been reported from Connecticut, Illinois, Maryland, Missouri, and New York City.

In Connecticut, an outbreak of A2/Hong Kong/68 influenza, documented by viral isolates, began at a university on November 17. Although secondary isolated cases of A2/Hong Kong/68 influenza were reported in a nearby college, there has been no increase in absenteeism rates in public schools or industries.

In Illinois, in a Veterans Administration hospital, influenza cases have occurred in several wards. A2 in-

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fluenza viruses were isolated from 10 cases, and to date, three of these have been confirmed as A2/Hong Kong/68-like viruses. Scattered isolated cases of A2/Hong Kong/68 influenza have also been confirmed in other areas of the state.

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TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	48th WEEK ENDED		MEDIAN 1963 - 1967	CUMULATIVE, FIRST 48 WEEKS		
	November 30, 1968	December 2, 1967		1968	1967	MEDIAN 1963 - 1967
Aseptic meningitis	64	56	47	4,124	2,841	2,003
Brucellosis	10	7	7	217	235	235
Diphtheria	3	24	2	218	187	187
Encephalitis, primary:						
Arthropod-borne & unspecified	22	17	---	1,324	1,487	---
Encephalitis, post-infectious	1	9	---	439	711	---
Hepatitis, serum	97	85	751	4,286	2,127	34,952
Hepatitis, infectious	834	766		42,180	35,614	
Malaria	54	46	1	2,200	1,936	97
Measles (rubeola)	212	248	2,272	21,441	60,732	253,379
Meningococcal infections, total	37	35	41	2,359	1,991	2,559
Civilian	37	35	---	2,166	1,868	---
Military	---	---	---	193	123	---
Mumps	1,918	---	---	140,086	---	---
Poliomyelitis, total	---	2	4	55	43	96
Paralytic	---	---	3	55	32	89
Rubella (German measles)	286	262	---	46,987	42,657	---
Streptococcal sore throat & scarlet fever	9,216	8,873	8,194	392,711	409,582	360,761
Tetanus	1	6	6	152	209	254
Tularemia	1	1	3	166	157	230
Typhoid fever	8	4	8	373	382	422
Typhus, tick-borne (Rky. Mt. spotted fever)	3	1	1	276	297	245
Rabies in animals	48	61	69	3,117	3,931	3,931

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	3	Rabies in man:	1
Botulism:	7	Rubella, Congenital Syndrome:	5
Leptospirosis: Fla.-4; Tenn.-1	53	Trichinosis: NYC-1	60
Plague:	3	Typhus, murine:	30
Psittacosis:	40		

INFLUENZA - (Continued from front page)

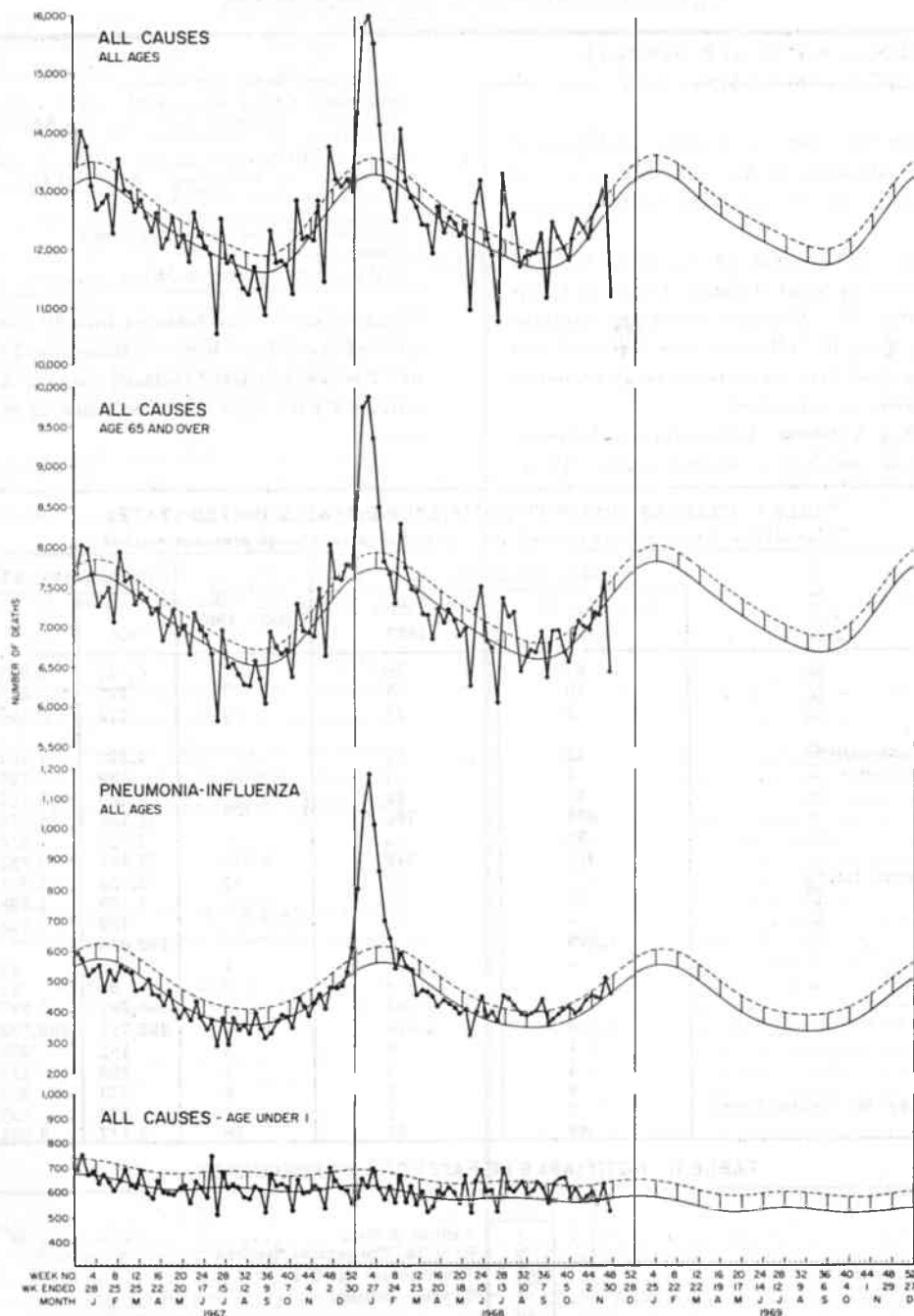
In Maryland, an outbreak of a febrile respiratory illness with an attack rate of 20 percent occurred in a school. Because of this outbreak, school was closed early for Thanksgiving vacation on November 22. Three of four throat cultures were positive for A2 influenza; further typing is underway.

In Missouri, an outbreak of an influenza-like illness began in a military installation on November 22. To date,

approximately 100 cases of influenza have occurred, and direct fluorescent antibody studies on sera from three patients have been positive for influenza A2. An A2/Hong Kong/68-like virus was isolated from a patient in another part of Missouri.

New York City reported scattered outbreaks of influenza-like illness, and an A2 influenza virus was isolated. Further typing of this virus is in progress. Although

Figure 1
MORTALITY IN 122 UNITED STATES CITIES



industries in New York City are reporting febrile respiratory illness in employees, absenteeism rates have not increased.

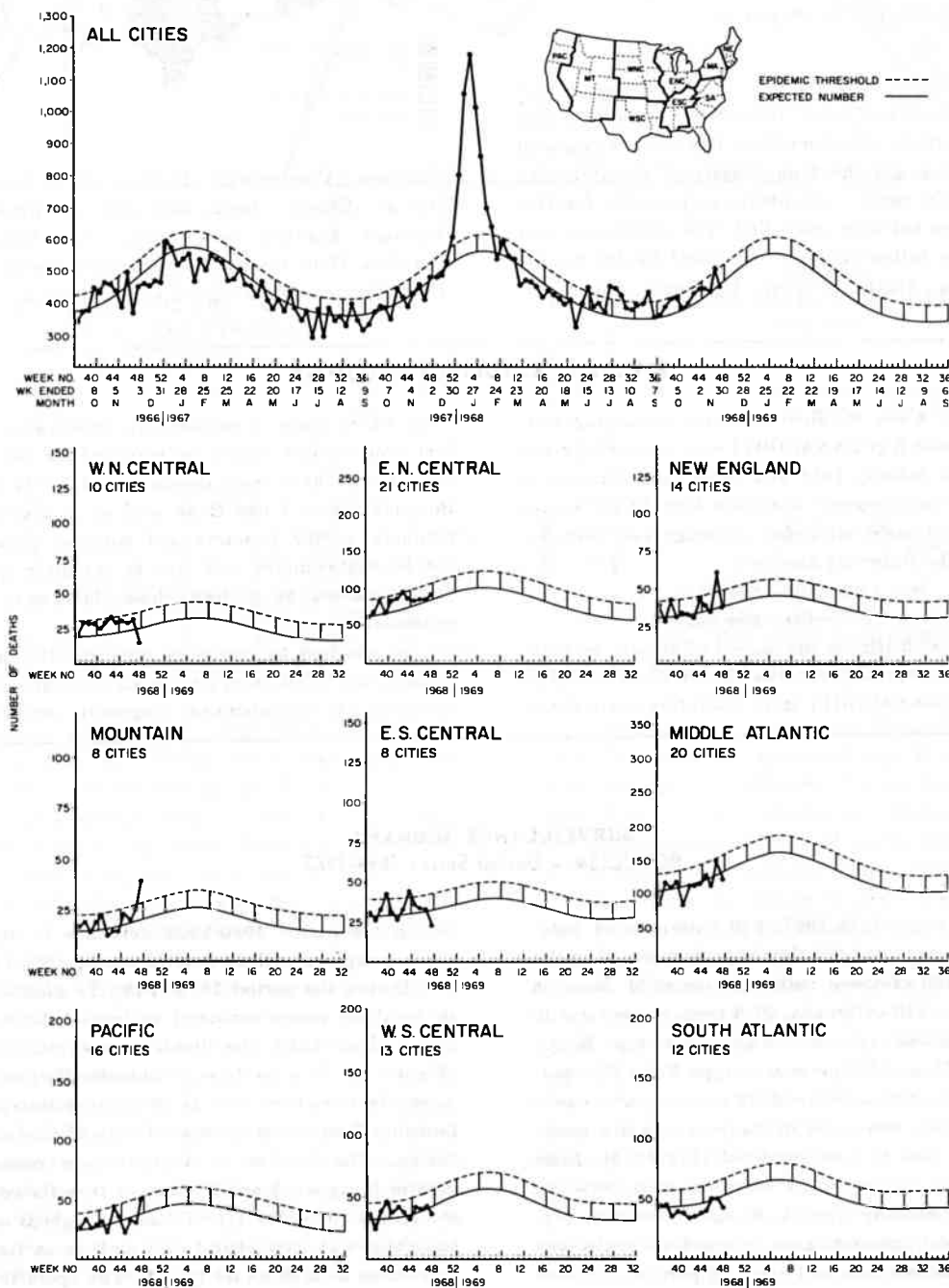
During the past week, Montana, Texas, Ohio, and the District of Columbia have reported isolated outbreaks of influenza-like illness. These are currently being investigated.

Since September 2, a total of 25 states and the District of Columbia and Puerto Rico have reported some form

of influenza activity (Figure 3). Documented outbreaks of A2/Hong Kong/68 influenza or A2 influenza were reported in Alaska, Puerto Rico, California, Colorado, Utah, Pennsylvania, New Jersey, Connecticut, Maryland, North Carolina, Washington, Missouri, Illinois, and New York City. Outbreaks of an influenza-like illness were reported from Montana, Arizona, Texas, Ohio, and the District of Columbia. In addition, Texas, Ohio, and the District of Columbia

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Figure 2
PNEUMONIA-INFLUENZA DEATHS IN 122 UNITED STATES CITIES



INFLUENZA - (Continued from page 443)

also reported laboratory documentation of isolated cases of A2/Hong Kong/68 influenza. Although no major outbreaks of influenza have occurred in Oregon, Hawaii, Minnesota, Iowa, Wisconsin, Michigan, Georgia, Alabama, and Virginia, these states have reported sporadic cases of A2/Hong Kong/68 influenza, documented by serologic evidence or viral isolations.

As illustrated in Figure 1, since the beginning of the current influenza season, there has been no sustained excess mortality reported from 122 U.S. cities. In addition, the geographic divisions with the exception of the Mountain Division have shown no significant increase in pneumonia-influenza deaths (Figure 2).

Editor's Note:

As contributors and readers of the *Morbidity and Mortality Weekly Report* know, individuals submitting data used in each article are identified. However, because of space limitations and the high priority of the influenza summary, in this issue, individuals responsible for this information have not been identified. The information was reported by the following state and local health departments: Alabama, Alaska, Arizona, California, Cleveland,

Figure 3
INCIDENCE OF INFLUENZA AND INFLUENZA-LIKE DISEASE BY STATE AS REPORTED TO NCDC
SEPTEMBER 2, 1968 - DECEMBER 4, 1968



Colorado, Connecticut, District of Columbia, Georgia, Hawaii, Illinois, Iowa, Maryland, Michigan, Minnesota, Missouri, Montana, New Jersey, New York City, North Carolina, Ohio, Oregon, Pennsylvania, Puerto Rico, Texas, Utah, Virginia, Washington, and Wisconsin.

TRIVALENT BOTULINUS ANTITOXIN

Recently, a new trivalent antitoxin containing antitoxins A, B, and E (CONNAUGHT) was licensed for use in the United States. This and other combinations of type specific antisera are available from NCDC on request. Day and night telephone coverage has been established at the following numbers:

Area Code 404 - 633-3311

404 - 634-2561

Patients with illness diagnosed clinically as botulism should immediately receive the trivalent antitoxin preparation (CONNAUGHT) until laboratory tests deter-

mine which toxin is responsible. Monovalent and bivalent preparations should be reserved for use after specific toxins have been demonstrated in the laboratory. Because types A and B as well as E toxins can contaminate marine products and because plant products can be contaminated with type E, the toxin type can not be determined by history alone; laboratory tests are essential.

In addition to providing type specific antisera on request, the NCDC also provides assistance in epidemic investigation and laboratory diagnostic services.

SURVEILLANCE SUMMARY
BOTULISM - United States 1899-1967

During the years 1899-1967, 640 outbreaks of botulism with 1,669 cases and 948 deaths were recorded in the United States; 163 of these outbreaks occurred between 1950-1967. Of the 640 outbreaks, 21.6 percent were due to *Clostridium botulinum*, type A, 5.3 percent to type B, 2.7 percent to type E, and 0.3 percent to type F; in 70.1 percent, the type was not determined. In recent years, cases due to type E have increased in frequency, while cases due to types A and B have declined (Figure 4). From 1960-1967, type E accounted for most cases reported by specific type followed by types A, B, and F, respectively. The proportion of diagnosed cases in which the toxin type was undetermined has remained high; 76 percent of cases

during the period 1950-1959 were due to unknown toxin types compared with 53 percent during 1960-1967.

During the period 1899-1949, the death-to-case ratio in botulism cases remained at levels above 60 percent. Since about 1950, the death-to-case ratio has declined (Figure 5). This decline is undoubtedly due to improvements in intensive care of acute respiratory failure and probably from the beneficial effects of *C. botulinum* antitoxins. The decline in death-to-case ratios has been greater for types A and B botulism than for type E. During the period 1960-1967, type E had the highest death-to-case ratio that was more than twice as high as for type A and four times as high as for type B. The specific age-to-case

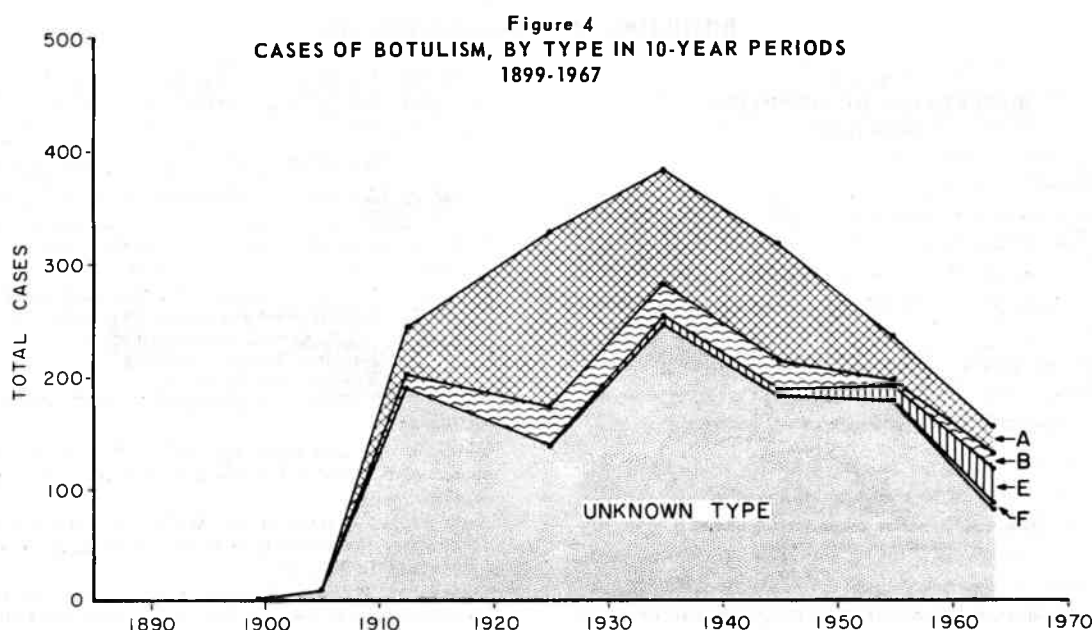
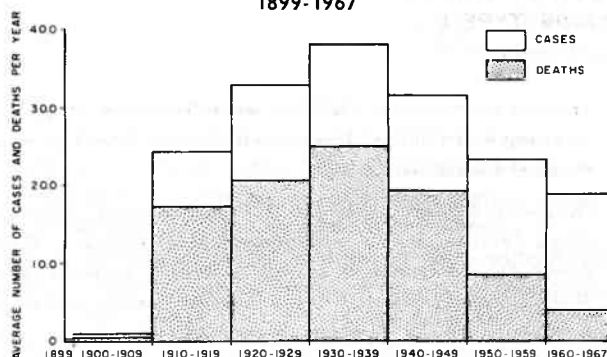


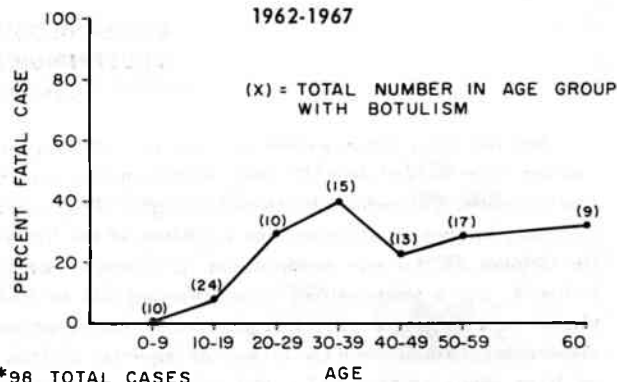
Figure 5
CASES AND DEATHS DUE TO BOTULISM
BY 10-YEAR PERIODS
1899-1967



fatality ratio was significantly higher for adults than for children from 1962-1967, during which time data were collected on 98 cases reported by age (Figure 6). This is probably a dose-related phenomenon rather than an inherent resistance of the young, since children are often more fastidious in their eating habits than adults.

Although outbreaks were reported from 44 states, five western states (California, Washington, Colorado, Oregon, and New Mexico) accounted for more than one-half of all reported outbreaks (Figure 7). There was also a correlation between the toxin type of botulism reported and the geographic area reporting it. Of the 139 type A outbreaks recorded from 1899-1967, 128 (91 percent) were in states west of the Mississippi River. California, Washington, New Mexico, and Oregon accounted for 43, 12, 8, and 7 percent, respectively, of type A outbreaks. Twenty-six states, most of them in the East, have never reported type A outbreaks. Of the 34 type B outbreaks, 23 were reported from eastern states; New York ranked first in type B outbreaks by reporting 10 of these. Of the type E outbreaks,

Figure 6
AGE SPECIFIC BOTULISM CASE* FATALITY RATES
1962-1967



*98 TOTAL CASES

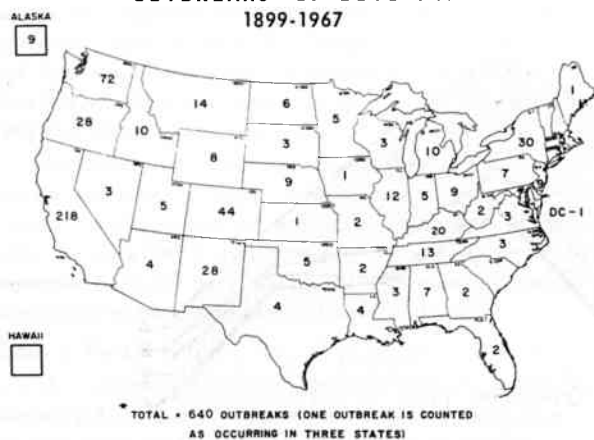
most occurred in Alaska or the Great Lakes area. However, California did report one type E outbreak and New York one type A outbreak. Alaska has never reported types A or B. These regional distributions are in keeping with the known distribution of spores revealed in surveys of soil samples conducted in 1922,¹ 1966,² and 1966.³

Since 1910, the source of most outbreaks of botulism was home-canned or preserved foods. A smaller number have been ascribed to commercially preserved foods. The sources of many outbreaks have remained unknown. Until a few years ago, outbreaks of botulism for which toxin types were determined were most frequently caused by type A or B toxin and were usually associated with ingestion of home-canned vegetables, fruits, or meat products. Botulism due to type E toxin was not recognized as a major problem until 1963 when 23 cases of this type were reported in 2 outbreaks traced to commercially preserved fish products. Of the 17 outbreaks of type E, 16 were traced to fish or fish products and one to a nonmarine

(Continued on page 446)

BOTULISM - (Continued from page 445)

Figure 7
OUTBREAKS* OF BOTULISM
1899-1967



outbreak of type F was reported; it was traced to home-prepared venison jerky (MMWR, Vol. 15, Nos. 41 and 42). (Reported by Enteric Diseases Unit, Bacterial Diseases Section, Epidemiology Program, and the Anaerobic Bacteriology Laboratory, Laboratory Program, NCDC.)

A copy of the original report from which these data were derived is available on request from:

National Communicable Disease Center
Atlanta, Georgia 30333
Attn: Chief, Enteric Diseases Unit
Bacterial Diseases Section
Epidemiology Program

References:

- ¹Meyer, K. F., and Dubovsky, B. J.: The distribution of the spores of *B. botulinus* in the United States. IV. *J Infect Dis.* 31:559-594, 1922.
- ²Bott, T. L., Deffner, J. S., McCoy, E., and Foster, E. M.: *Clostridium botulinum* type E in fish from the Great Lakes. *J Bact.* 91:919-924, 1966.
- ³Eklund, M. W., and Poysky, F.: Incidence of *Clostridium botulinum* type E from the Pacific Coast of the United States. Proceedings of the Fifth International Symposium on Food Microbiology: Moscow, July 1966. p. 49. Edited by Ingram, M., and Roberts, T. A., Chapman and Hall, Limited, London.

product, mushrooms. In addition to these 16 outbreaks of type E associated with fish, five outbreaks traced to fish or fish products were due to type A, and 2 to type B. One

EPIDEMIOLOGIC NOTES AND REPORTS CLOSTRIDIUM BOTULINUM, TYPE A - Los Angeles, California

Several days after eating a sandwich of chopped chicken liver on October 17, 1968, a 23-year-old man in Los Angeles, California, developed diplopia, dysphagia, difficulty in opening his eyes, and weakness of the limbs. On October 23, he was hospitalized. Respiratory arrest followed, and a tracheostomy was performed and he was placed on a respirator. A lumbar puncture revealed normal cerebrospinal fluid. When the history of ingesting a chicken liver sandwich that had a bad taste was elicited, a diagnosis of botulism was made. At the present time, although the patient has shown slight improvement, he still requires constant assistance for respiration.

Laboratory studies of the leftover chicken liver revealed *Clostridium botulinum*, type A toxin. No toxin was detected in the patient's serum obtained on October 23.

The commercial source for the chopped chicken liver was investigated. It was found that the chopped chicken livers are prepared from frozen stock. They are boiled for 20 minutes and then blended with onions, chicken skin, eggs, and seasoning. The resultant mixture is packed in a glass jar and immersed for 1 hour in a 180°F. water bath for pasteurization. During this process the internal temperature of the jars does not exceed 155°F. After cooling

at room temperature, the jars are refrigerated at 42°F., awaiting distribution. The canned chicken liver has been recalled from distribution.

(Reported by James Chin, M.D., Head, General Epidemiology Section, Bureau of Communicable Diseases, California State Department of Public Health; Ichiro Kamei, M.D., Chief, Division of Acute Disease Control, and C.A. Lawrence, Ph.D., Director, Bureau of Laboratories, Los Angeles County Department of Public Health; and an EIS Officer.)

Editorial Note:

It is not unusual that type A toxin was not found in the patient's serum since 9 days had elapsed after ingestion of the contaminated vehicle and since, of all the botulinum toxins, type A appears to have the greatest tissue affinity. Prodromal gastrointestinal symptoms were notably absent in this case which is consistent with the behavior of type A toxin. Gastrointestinal disturbances are seen more commonly with types B and E. This is the second case of *C. botulinum* type A involving canned chicken liver reported to the NCDC during the past 5 years.

MEASLES - Philadelphia

Between September 1 and November 16, 1968, 44 cases of measles were reported from Philadelphia; 24 of which were associated with an elementary school out-

break. This outbreak was discovered following the investigation of a case reported on November 6 in a 6-year-old Negro boy. School attendance records for grades 1-4 in

this boy's school were reviewed and visits to homes of children who had 4 or more consecutive days of absenteeism were conducted. A total of 15 measles cases since the opening of school on September 6 were uncovered (Table 1). An additional nine measles cases were discovered in preschool siblings of school age cases.

Because a school child could not be identified as the index case, further epidemiologic investigation of pre-

school children was undertaken. After possible exposure to measles in a hospital outpatient clinic, a 1-year-old boy developed measles on September 9. His 4-year-old sister, following 4 days of cough, coryza, and fever, developed a rash on September 24 which lasted until September 30. On September 29, this girl attended a church service with another of her brothers and sat with members of his first grade class of the involved school. Although these class members were exposed late in this girl's illness, she may have been the source of measles introduction for the school.

Cases of measles have been reported among students in at least four other schools in this area of Philadelphia. These cases are presently being investigated.

(Reported by Alfred S. Bogucki, M.D., M.P.H., Director, Division of Epidemiology, Lewis D. Polk, M.D., M.P.H., Deputy Health Commissioner for Community Health Services, and David Faris, M.D., M.P.H., Division of Epidemiology, City of Philadelphia, Department of Public Health; and an EIS Officer.)

Table 1

Measles Attack Rates by Grade in a Philadelphia Elementary School, September 6 – November 16, 1968

Grade	Enrollment	Measles Cases	Attack Rate (Percent)
1	52	8	15
2	35	5	14
3	29	1	3
4	44	1	2
Total	160	15	11

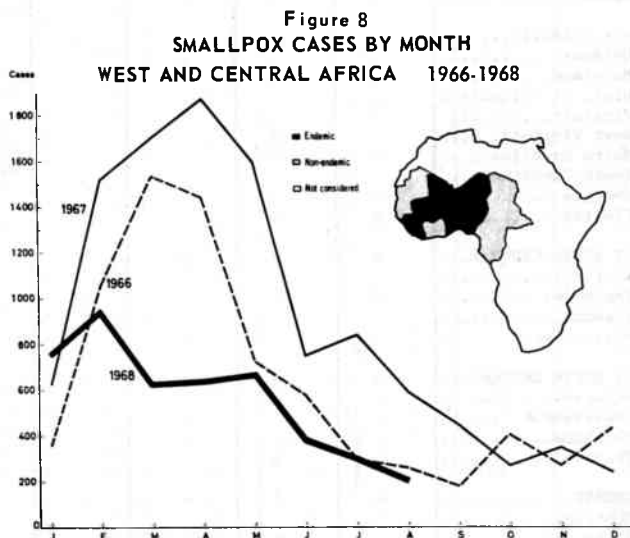
INTERNATIONAL NOTES SMALLPOX SURVEILLANCE IN AFRICA¹

Through October 31 in 1968, 54,135 cases of smallpox were reported from the world's endemic areas to the World Health Organization, approximately one-half the number of cases recorded during the same period in 1967. Of these, 17.1 percent were reported from Africa.

At present in Africa, smallpox is not a widespread disease; rather, it is concentrated in certain geographic foci. Five endemic areas are readily definable: in West and Central Africa – 1) Sierra Leone-Guinea and 2) Nigeria-Niger-Dahomey-Togo; and in East and Southern Africa – 3) Ethiopia, 4) Democratic Republic of the Congo, and 5) Mozambique. Adjacent countries, often periodically free of smallpox, are repeatedly reinfected from these endemic areas.

In West and Central Africa, an active eradication program has been underway for the past 2 years. Since January 1, 1967, over 60,000,000 vaccinations have been given in this area which has a population of 116,000,000. In the endemic areas, prompt case investigation and epidemic control measures are being performed whenever a case is reported. Results of these efforts are shown in the significant reduction of smallpox cases over the past year (Figure 8). To date in 1968, 4,556 cases of smallpox have been reported compared with 9,724 cases in 1967, a reduction of 53.1 percent. Every country except Togo has recorded fewer cases this year than last.

For 1968, however, in Eastern and Southern Africa, reported smallpox cases are already 50 percent greater than in 1967. If present trends continue, about 7,000 cases will be reported for the year. This approximates the num-



ber of cases observed during most years of the past decade but is considerably more than the 4,450 cases reported in 1967, a record low year. Information regarding the progress of smallpox eradication efforts in Eastern and Southern Africa is incomplete since most of these countries are just beginning or have only recently begun vaccination programs.

(Reported by the Smallpox Eradication Program, NCDC.)

Reference:

¹World Health Organization *Weekly Epidemiological Record*, 43(45):575-579.

Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED
NOVEMBER 30, 1968 AND DECEMBER 2, 1968 (48th WEEK)

AREA	ASEPTIC MENINGITIS		BRUCELLOSIS	DIPHTHERIA	ENCEPHALITIS			HEPATITIS			MALARIA
					Primary including unsp. cases		Post- Infectious	Serum	Infectious		
	1968	1967	1968	1968	1968	1967	1968	1968	1968	1967	1968
UNITED STATES...	64	56	10	3	22	17	1	97	834	766	54
NEW ENGLAND.....	1	-	2	-	5	-	1	15	57	38	1
Maine.*.....	-	-	1	-	-	-	-	-	1	2	-
New Hampshire.*....	-	-	-	-	-	-	-	-	1	-	-
Vermont.....	-	-	-	-	-	-	-	-	-	-	-
Massachusetts.....	1	-	1	-	2	-	-	4	34	12	1
Rhode Island.....	-	-	-	-	1	-	-	-	8	2	-
Connecticut.....	-	-	-	-	2	-	1	11	13	22	-
MIDDLE ATLANTIC.....	13	12	1	-	-	1	-	42	153	102	4
New York City.....	4	3	-	-	-	1	-	26	64	37	-
New York, up-State..	-	2	1	-	-	-	-	7	23	14	1
New Jersey.....	5	5	-	-	-	-	-	5	25	22	-
Pennsylvania.....	4	2	-	-	-	-	-	4	41	29	3
EAST NORTH CENTRAL...	7	5	-	-	7	2	-	2	142	128	2
Ohio.....	-	2	-	-	4	1	-	-	61	25	-
Indiana.....	-	-	-	-	-	-	-	-	8	12	-
Illinois.....	2	1	-	-	-	-	-	1	18	37	2
Michigan.....	5	1	-	-	2	1	-	1	46	39	-
Wisconsin.....	-	1	-	-	1	-	-	-	9	15	-
WEST NORTH CENTRAL...	1	-	1	-	1	1	-	-	25	53	2
Minnesota.....	1	-	-	-	-	-	-	-	15	17	-
Iowa.....	-	-	-	-	1	1	-	-	4	16	-
Missouri.....	-	-	-	-	-	-	-	-	1	12	2
North Dakota.....	-	-	1	-	-	-	-	-	-	2	-
South Dakota.....	-	-	-	-	-	-	-	-	-	-	-
Nebraska.....	-	-	-	-	-	-	-	-	3	-	-
Kansas.....	-	-	-	-	-	-	-	-	2	6	-
SOUTH ATLANTIC.....	8	12	-	-	-	5	-	2	88	94	24
Delaware.....	-	-	-	-	-	-	-	-	1	5	-
Maryland.....	1	2	-	-	-	-	-	-	15	13	-
Dist. of Columbia.*	-	-	-	-	-	-	-	1	-	4	-
Virginia.....	1	1	-	-	-	-	-	1	14	10	-
West Virginia.....	-	2	-	-	-	-	-	-	7	13	-
North Carolina.....	-	1	-	-	-	2	-	-	7	3	11
South Carolina.....	-	-	-	-	-	-	-	-	7	1	-
Georgia.....	-	-	-	-	-	-	-	-	17	34	10
Florida.....	6	6	-	-	-	3	-	-	20	11	3
EAST SOUTH CENTRAL...	8	-	2	2	-	-	-	1	51	57	2
Kentucky.....	4	-	-	-	-	-	-	-	29	19	2
Tennessee.....	4	-	2	-	-	-	-	1	12	20	-
Alabama.....	-	-	-	2	-	-	-	-	6	2	-
Mississippi.....	-	-	-	-	-	-	-	-	4	16	-
WEST SOUTH CENTRAL...	4	3	-	1	2	3	-	1	32	76	4
Arkansas.....	-	1	-	-	-	-	-	-	-	9	-
Louisiana.*.....	-	-	-	1	-	1	-	1	7	18	3
Oklahoma.....	-	-	-	-	1	2	-	-	1	6	1
Texas.....	4	2	-	-	1	-	-	-	24	43	-
MOUNTAIN.....	1	1	-	-	1	-	-	1	53	24	2
Montana.....	-	-	-	-	-	-	-	-	1	7	-
Idaho.....	-	-	-	-	-	-	-	-	1	-	-
Wyoming.....	-	-	-	-	-	-	-	-	1	2	-
Colorado.....	-	1	-	-	-	-	-	1	25	-	2
New Mexico.....	1	-	-	-	-	-	-	-	14	2	-
Arizona.....	-	-	-	-	-	-	-	-	3	-	-
Utah.....	-	-	-	-	1	-	-	-	8	11	-
Nevada.....	-	-	-	-	-	-	-	-	-	2	-
PACIFIC.....	21	23	4	-	6	5	-	33	233	194	13
Washington.....	1	-	-	-	1	-	-	-	17	20	-
Oregon.....	-	-	-	-	-	-	-	-	20	12	1
California.....	20	21	4	-	5	5	-	33	192	161	4
Alaska.....	-	-	-	-	-	-	-	-	-	-	-
Hawaii.....	-	2	-	-	-	-	-	-	4	1	8
Puerto Rico.....	-	-	-	-	-	-	-	-	46	22	-

*Delayed reports: Aseptic meningitis: D.C. 7, La. delete 2
Encephalitis, primary: N.H. 1, D.C. 5, La. 1
Hepatitis, infectious: Me. 3

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
NOVEMBER 30, 1968 AND DECEMBER 2, 1967 (48th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS	POLIOMYELITIS			RUBELLA	
	1968	Cumulative		1968	Cumulative			1968	Total	Paralytic		
		1968	1967		1968	1967			1968	1968		Cum. 1968
UNITED STATES...	212	21,441	60,732	37	2,359	1,991	1,918	-	-	55	286	
NEW ENGLAND.....	26	1,245	923	2	137	80	339	-	-	1	21	
Maine.....	-	38	262	-	6	3	38	-	-	-	2	
New Hampshire.....	-	141	77	-	8	3	1	-	-	-	-	
Vermont.....	1	3	34	-	1	1	34	-	-	-	-	
Massachusetts*.....	3	379	391	1	72	36	137	-	-	1	8	
Rhode Island.....	16	39	62	-	9	6	64	-	-	-	2	
Connecticut.....	6	645	97	1	41	31	65	-	-	-	9	
MIDDLE ATLANTIC.....	60	4,533	2,483	3	423	329	59	-	-	1	18	
New York City.....	27	2,342	508	-	86	60	32	-	-	-	8	
New York, Up-State..	13	1,337	630	-	72	81	NN	-	-	1	4	
New Jersey.....	16	689	575	-	146	106	27	-	-	-	6	
Pennsylvania.....	4	165	770	3	119	82	NN	-	-	-	-	
EAST NORTH CENTRAL...	35	4,082	6,028	7	294	277	470	-	-	9	73	
Ohio.....	5	320	1,177	1	82	92	51	-	-	2	8	
Indiana.....	5	709	647	1	40	31	44	-	-	2	17	
Illinois.....	6	1,410	1,162	1	64	61	16	-	-	2	6	
Michigan.....	4	317	1,006	4	88	72	77	-	-	3	29	
Wisconsin.....	15	1,326	2,036	-	20	21	282	-	-	-	13	
WEST NORTH CENTRAL...	2	409	2,944	-	126	93	381	-	-	3	18	
Minnesota.....	-	18	135	-	29	21	7	-	-	-	3	
Iowa.....	-	108	775	-	10	19	172	-	-	1	13	
Missouri.....	-	81	340	-	41	18	130	-	-	2	-	
North Dakota.....	-	138	886	-	4	3	58	-	-	-	-	
South Dakota.....	-	4	58	-	5	7	NN	-	-	-	-	
Nebraska.....	2	50	656	-	9	15	7	-	-	-	2	
Kansas.....	-	10	94	-	28	10	7	-	-	-	-	
SOUTH ATLANTIC.....	37	1,645	7,214	11	474	388	114	-	-	3	25	
Delaware.....	1	18	50	3	12	8	2	-	-	-	3	
Maryland.....	-	103	174	-	40	55	16	-	-	-	5	
Dist. of Columbia..	-	6	24	-	17	15	1	-	-	1	-	
Virginia.....	-	319	2,254	-	44	43	7	-	-	-	3	
West Virginia.....	-	312	1,457	-	13	37	54	-	-	1	9	
North Carolina.....	25	317	926	3	94	80	NN	-	-	1	-	
South Carolina.....	3	22	512	-	61	32	13	-	-	-	1	
Georgia.....	-	4	42	3	93	57	-	-	-	-	-	
Florida.....	8	544	1,775	2	100	61	21	-	-	-	4	
EAST SOUTH CENTRAL...	-	503	5,460	1	209	156	48	-	-	1	7	
Kentucky.....	-	103	1,428	-	94	45	27	-	-	1	-	
Tennessee.....	-	64	2,002	1	64	68	21	-	-	-	5	
Alabama.....	-	95	1,354	-	27	29	-	-	-	-	-	
Mississippi.....	-	241	676	-	24	14	-	-	-	-	2	
WEST SOUTH CENTRAL...	25	5,155	18,005	5	336	252	52	-	-	24	14	
Arkansas.....	-	2	1,404	-	20	40	-	-	-	1	-	
Louisiana.....	-	25	156	-	94	98	-	-	-	-	-	
Oklahoma.....	-	128	3,359	2	55	18	2	-	-	2	2	
Texas.....	25	5,000	13,086	3	167	96	50	-	-	21	12	
MOUNTAIN.....	2	1,058	4,848	2	43	40	70	-	-	1	29	
Montana.....	-	58	328	-	6	5	18	-	-	-	6	
Idaho.....	-	21	395	-	11	3	1	-	-	-	-	
Wyoming.....	-	54	202	-	3	1	-	-	-	-	-	
Colorado.....	1	521	1,617	1	13	13	29	-	-	-	11	
New Mexico.....	-	143	606	-	1	5	3	-	-	-	-	
Arizona.....	-	233	1,048	1	5	6	17	-	-	1	3	
Utah.....	-	21	383	-	1	4	2	-	-	-	9	
Nevada.....	1	7	269	-	3	3	-	-	-	-	-	
PACIFIC.....	25	2,811	12,827	6	317	376	385	-	-	12	81	
Washington.....	5	588	5,623	3	50	37	168	-	-	1	41	
Oregon.....	5	577	1,698	-	25	30	3	-	-	-	7	
California.*.....	15	1,600	5,183	3	225	294	197	-	-	11	31	
Alaska.....	-	11	141	-	3	11	11	-	-	-	-	
Hawaii.....	-	35	182	-	14	4	6	-	-	-	2	
Puerto Rico.....	3	488	2,236	-	20	15	30	-	-	-	-	

*Delayed reports: Measles: Mass. delete 5
Meningococcal infections: N.H. 1
Mumps: Calif.252

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
NOVEMBER 30, 1968 AND DECEMBER 2, 1967 (48th WEEK) - CONTINUED

AREA	STREPTOCOCCAL SORE THROAT & SCARLET FEVER	TETANUS		TULAREMIA		TYPHOID		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
		1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968
UNITED STATES...	9,216	1	152	1	166	8	373	3	276	48	3,117
NEW ENGLAND.....	1,398	-	4	-	47	-	13	-	1	-	74
Maine.*.....	16	-	-	-	-	-	2	-	-	-	55
New Hampshire.....	26	-	1	-	-	-	1	-	-	-	2
Vermont.....	20	-	-	-	47	-	-	-	-	-	11
Massachusetts.....	239	-	1	-	-	-	7	-	1	-	5
Rhode Island.....	148	-	-	-	-	-	-	-	-	-	-
Connecticut.....	949	-	2	-	-	-	3	-	-	-	1
MIDDLE ATLANTIC.....	228	-	19	-	10	1	35	-	22	1	51
New York City.....	6	-	11	-	-	1	18	-	-	-	-
New York, Up-State.....	192	-	4	-	7	-	8	-	5	-	41
New Jersey.....	NN	-	1	-	-	-	4	-	7	-	-
Pennsylvania.....	30	-	3	-	3	-	5	-	10	1	10
EAST NORTH CENTRAL...	574	-	16	-	11	-	47	-	9	1	279
Ohio.....	134	-	2	-	1	-	19	-	7	-	92
Indiana.....	90	-	2	-	1	-	7	-	-	-	90
Illinois.....	63	-	8	-	8	-	19	-	2	-	38
Michigan.....	150	-	3	-	1	-	-	-	-	1	17
Wisconsin.....	137	-	1	-	-	-	2	-	-	-	42
WEST NORTH CENTRAL...	335	-	15	-	16	1	39	-	9	12	772
Minnesota.....	44	-	2	-	-	-	2	-	-	4	246
Iowa.....	94	-	4	-	-	-	2	-	1	-	119
Missouri.....	1	-	5	-	7	-	26	-	3	1	111
North Dakota.....	61	-	-	-	-	-	-	-	-	6	126
South Dakota.....	24	-	1	-	3	-	2	-	4	-	97
Nebraska.....	58	-	3	-	1	1	4	-	1	-	27
Kansas.....	53	-	-	-	5	-	3	-	-	1	46
SOUTH ATLANTIC.....	877	-	32	-	12	1	62	1	142	9	382
Delaware.....	5	-	-	-	-	-	-	-	-	-	1
Maryland.....	148	-	3	-	-	-	9	-	18	-	6
Dist. of Columbia..	-	-	2	-	-	-	1	-	-	-	2
Virginia.....	231	-	4	-	3	-	10	-	44	2	131
West Virginia.....	183	-	2	-	-	-	-	-	2	-	49
North Carolina.....	14	-	2	-	3	-	4	-	39	-	12
South Carolina.....	72	-	4	-	-	-	3	-	9	-	-
Georgia.....	5	-	3	-	4	-	15	1	27	4	77
Florida.....	219	-	12	-	2	1	20	-	3	3	104
EAST SOUTH CENTRAL...	959	-	15	-	9	2	46	2	57	9	665
Kentucky.....	122	-	1	-	2	-	10	-	10	6	351
Tennessee.....	674	-	6	-	5	2	21	1	39	3	282
Alabama.....	66	-	5	-	-	-	2	1	5	-	25
Mississippi.....	97	-	3	-	2	-	13	-	3	-	7
WEST SOUTH CENTRAL...	518	1	30	1	48	-	51	-	30	12	482
Arkansas.....	16	-	5	-	15	-	18	-	6	1	62
Louisiana.....	14	-	10	-	7	-	6	-	1	1	46
Oklahoma.....	50	-	-	-	9	-	15	-	14	1	120
Texas.....	438	1	15	1	17	-	12	-	9	9	254
MOUNTAIN.....	2,264	-	1	-	9	2	21	-	5	2	89
Montana.....	50	-	-	-	-	-	-	-	-	-	-
Idaho.....	92	-	-	-	-	-	-	-	1	-	-
Wyoming.*.....	192	-	-	-	1	-	1	-	-	-	3
Colorado.....	1,625	-	-	-	3	2	5	-	4	-	4
New Mexico.....	119	-	-	-	-	-	8	-	-	1	39
Arizona.....	78	-	1	-	-	-	6	-	-	1	39
Utah.....	105	-	-	-	5	-	-	-	-	-	1
Nevada.....	3	-	-	-	-	-	1	-	-	-	3
PACIFIC.....	2,063	-	20	-	4	1	59	-	1	2	323
Washington.....	1,240	-	1	-	-	-	2	-	-	-	2
Oregon.....	75	-	1	-	1	-	5	-	-	-	6
California.....	592	-	18	-	3	1	52	-	1	2	315
Alaska.....	5	-	-	-	-	-	-	-	-	-	-
Hawaii.....	151	-	-	-	-	-	-	-	-	-	-
Puerto Rico.....	6	-	12	-	-	1	5	-	-	-	20

*Delayed reports: SST: Me. 15, Wyo. 8

Rabies in animals: Ariz. 1

Morbidity and Mortality Weekly Report

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Week No. TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED NOVEMBER 30, 1968

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(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes	Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over				All Ages	65 years and over		
NEW ENGLAND:	719	424	37	23	SOUTH ATLANTIC:	1,064	563	41	65
Boston, Mass.-----	224	118	10	4	Atlanta, Ga.-----	121	53	3	6
Bridgeport, Conn.-----	40	22	4	2	Baltimore, Md.-----	212	121	8	15
Cambridge, Mass.-----	32	18	7	2	Charlotte, N. C.-----	39	12	-	2
Fall River, Mass.-----	28	20	-	-	Jacksonville, Fla.-----	77	41	1	4
Hartford, Conn.-----	68	50	1	1	Miami, Fla.-----	79	41	-	4
Lowell, Mass.-----	35	19	-	1	Norfolk, Va.-----	54	31	3	6
Lynn, Mass.-----	22	14	-	-	Richmond, Va.-----	79	44	5	6
New Bedford, Mass.-----	23	16	-	-	Savannah, Ga.-----	33	14	3	2
New Haven, Conn.-----	28	19	-	2	St. Petersburg, Fla.-----	57	51	3	-
Providence, R. I.-----	63	39	8	3	Tampa, Fla.-----	54	35	7	1
Somerville, Mass.-----	13	9	-	-	Washington, D. C.-----	211	99	5	13
Springfield, Mass.-----	47	27	5	4	Wilmington, Del.-----	48	21	3	6
Waterbury, Conn.-----	41	21	-	1					
Worcester, Mass.-----	55	32	2	3	EAST SOUTH CENTRAL:	503	274	23	28
MIDDLE ATLANTIC:	2,954	1,781	118	109	Birmingham, Ala.-----	74	38	1	10
Albany, N. Y.-----	45	28	1	1	Chattanooga, Tenn.-----	20	9	2	-
Allentown, Pa.-----	24	18	1	-	Knoxville, Tenn.-----	28	14	2	2
Buffalo, N. Y.-----	129	85	7	7	Louisville, Ky.-----	105	58	8	4
Camden, N. J.-----	44	19	5	4	Memphis, Tenn.-----	107	59	2	5
Elizabeth, N. J.-----	24	16	2	-	Mobile, Ala.-----	52	30	1	5
Erie, Pa.-----	41	25	1	-	Montgomery, Ala.-----	27	11	1	1
Jersey City, N. J.-----	72	46	7	3	Nashville, Tenn.-----	90	55	6	1
Newark, N. J.-----	59	29	5	2	WEST SOUTH CENTRAL:	875	469	35	45
New York City, N. Y.-----	1,556	903	48	45	Austin, Tex.-----	31	17	1	3
Paterson, N. J.-----	27	18	1	2	Baton Rouge, La.-----	28	12	-	1
Philadelphia, Pa.-----	401	246	4	27	Corpus Christi, Tex.-----	16	8	-	2
Pittsburgh, Pa.-----	135	80	5	3	Dallas, Tex.-----	136	74	7	10
Reading, Pa.-----	57	44	6	2	El Paso, Tex.-----	20	9	1	2
Rochester, N. Y.-----	96	63	11	3	Fort Worth, Tex.-----	61	37	2	2
Schenectady, N. Y.-----	32	26	4	1	Houston, Tex.-----	136	61	1	7
Scranton, Pa.-----	36	22	1	3	Little Rock, Ark.-----	40	24	5	-
Syracuse, N. Y.-----	78	50	3	4	New Orleans, La.-----	162	86	5	5
Trenton, N. J.-----	35	20	3	1	Oklahoma City, Okla.-----	53	27	1	2
Utica, N. Y.-----	33	26	1	-	San Antonio, Tex.-----	82	47	1	9
Yonkers, N. Y.-----	30	17	2	1	Shreveport, La.-----	54	30	6	2
EAST NORTH CENTRAL:	2,409	1,355	88	111	Tulsa, Okla.-----	56	37	5	-
Akron, Ohio-----	64	41	-	5	MOUNTAIN:	487	255	39	29
Canton, Ohio-----	38	20	3	6	Albuquerque, N. Mex.-----	31	17	3	3
Chicago, Ill.-----	748	387	41	42	Colorado Springs, Colo.-----	50	26	5	6
Cincinnati, Ohio-----	129	73	4	8	Denver, Colo.-----	137	66	17	8
Cleveland, Ohio-----	231	122	2	5	Ogden, Utah-----	23	10	3	1
Columbus, Ohio-----	130	75	1	3	Phoenix, Ariz.-----	124	69	6	7
Dayton, Ohio-----	67	35	1	4	Pueblo, Colo.-----	15	9	3	1
Detroit, Mich.-----	323	182	8	14	Salt Lake City, Utah-----	51	24	-	1
Evansville, Ind.-----	38	30	1	-	Tucson, Ariz.-----	56	34	2	2
Flint, Mich.-----	52	28	1	1	PACIFIC:	1,396	852	51	60
Fort Wayne, Ind.-----	29	18	-	1	Berkeley, Calif.-----	17	14	2	-
Gary, Ind.-----	42	26	3	3	Fresno, Calif.-----	45	23	4	3
Grand Rapids, Mich.-----	37	21	1	2	Glendale, Calif.-----	36	24	2	1
Indianapolis, Ind.-----	120	71	4	7	Honolulu, Hawaii-----	46	24	4	8
Madison, Wis.-----	12	6	1	1	Long Beach, Calif.-----	79	52	2	5
Milwaukee, Wis.-----	88	58	-	3	Los Angeles, Calif.-----	374	238	8	12
Peoria, Ill.-----	42	25	-	2	Oakland, Calif.-----	47	22	1	-
Rockford, Ill.-----	32	15	4	-	Pasadena, Calif.-----	43	35	3	-
South Bend, Ind.-----	33	21	3	-	Portland, Oreg.-----	147	93	1	4
Toledo, Ohio-----	97	62	8	4	Sacramento, Calif.-----	50	34	3	1
Youngstown, Ohio-----	57	39	2	-	San Diego, Calif.-----	94	50	1	6
WEST NORTH CENTRAL:	802	472	14	47	San Francisco, Calif.-----	136	67	6	7
Des Moines, Iowa-----	49	31	1	3	San Jose, Calif.-----	47	25	5	4
Duluth, Minn.-----	33	17	1	5	Seattle, Wash.-----	151	90	8	7
Kansas City, Kans.-----	29	17	2	3	Spokane, Wash.-----	52	39	1	2
Kansas City, Mo.-----	131	74	1	9	Tacoma, Wash.-----	32	22	-	-
Lincoln, Nebr.-----	18	15	1	-	Total	11,209	6,445	446	517
Minneapolis, Minn.-----	111	65	3	5					
Omaha, Nebr.-----	64	45	-	2					
St. Louis, Mo.-----	241	136	4	17					
St. Paul, Minn.-----	62	42	1	2					
Wichita, Kans.-----	64	30	-	1					

EPIDEMIOLOGIC NOTES AND REPORTS

SCOMBROID FISH POISONING – New York City

Recently, two outbreaks of scombroid fish poisoning occurred in New York City. The first outbreak occurred on July 10, 1968, among members of two families. Of a total of nine persons, eight became ill with symptoms characterized by generalized flushing, urticaria, conjunctivitis, nausea, headache, abdominal cramps, and diarrhea. The incubation period was less than 30 minutes and duration of illness from 1 to 4 hours. The patients improved with antihistamine treatment.

Food histories implicated fresh tuna fish as the vehicle of infection. The tuna fish was purchased from a fish market, and then washed, salted, and refrigerated. Later the same day, it was fried and eaten. Routine laboratory cultures of left-over fish including tests for *Proteus* species were negative. However, the fish was noted to be honeycombed – a sign of advanced decomposition – and had a histamine level of 425.5 mg per 100 gm.*

The second outbreak occurred on October 4, 1968, among members of two families. Of six persons eating the meal, five subsequently became ill with symptoms characterized by rash, palpitations, nausea, abdominal cramps, and diarrhea. The incubation period was 20-30 minutes and duration of illness from 2 to 6 hours. The patients were treated with antihistamines.

Food histories again implicated fresh tuna fish as the vehicle. The tuna fish was caught off-shore by a private fisherman 4 days prior to the dinner. The fish was refrigerated intact for the first 24 hours. In attempting to clean the fish the following day, difficulty was encountered in removing the head. To facilitate dressing, the fish was placed in a bath tub of hot water for 24 hours. The fish was then cut, cooked, and eaten. No fish remained for laboratory examination.

(Reported by Carol Schachner, M.D., Epidemiologist, and Tibor Fodor, M.D., Chief, Division of Epidemiology and Diagnosis, New York City Department of Health.)

Editorial Note:

Scombroid fish poisoning occurs in scombroid fish such as tuna, mackerel, bonito, albacore, and skipjack. This form of ichthyosarcotoxism, which is associated with inadequate refrigeration or decomposition of fish, is thought to be due to the release of histamine or a histamine-like substance called saurine. These chemical products are released when contaminating or naturally present bacteria such as *Proteus* species act on the histidine substrate in the fish skin.^{1,2}

References:

- ¹Kawabata, T., Ishizaka, K., and Miura, T.: Studies on allergy-like food poisoning associated with putrefaction of marine products. *Jap J M Sc and Biol* 8(6):487-528, 1955.
- ²Halstead, B.W.: Poisonous fish-like vertebrates. In Conference on Shellfish Toxicology, 1957. U.S. Department of Health, Education, and Welfare, Public Health Service, Washington, D. C., 1957, pp. 37-76.

*A level of 50 micrograms per 100 ml is evidence of advanced decomposition for tuna fish. In freshly caught tuna fish, the amount of histamine is virtually zero.

THE MORBIDITY AND MORTALITY WEEKLY REPORT, WITH A CIRCULATION OF 17,000 IS PUBLISHED AT THE NATIONAL COMMUNICABLE DISEASE CENTER, ATLANTA, GEORGIA.

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IN ADDITION TO THE ESTABLISHED PROCEDURES FOR REPORTING MORBIDITY AND MORTALITY, THE NATIONAL COMMUNICABLE DISEASE CENTER WELCOMES ACCOUNTS OF INTERESTING OUTBREAKS OR CASE INVESTIGATIONS WHICH ARE OF CURRENT INTEREST TO HEALTH OFFICIALS AND WHICH ARE DIRECTLY RELATED TO THE CONTROL OF COMMUNICABLE DISEASES. SUCH COMMUNICATIONS SHOULD BE ADDRESSED TO:

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MORBIDITY AND MORTALITY WEEKLY REPORT

NOTE: THE DATE IN THIS REPORT ARE PROVISIONAL AND ARE BASED ON WEEKLY TELEGRAMS TO THE NCDC BY THE INDIVIDUAL STATE HEALTH DEPARTMENTS. THE REPORTING WEEK CONCLUDES AT CLOSE OF BUSINESS ON FRIDAY; COMPILED DATA ON A NATIONAL BASIS ARE RELEASED ON THE SUCCEEDING FRIDAY.

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